



Detector Support Group

We choose to do these things "not because they are easy, but because they are hard".

Weekly Report, 2022-01-12

Summary

Hall A

Brian Eng

- Reviewing and commenting on GEN-II ERR responses from collaboration

Hall A – ECal

George Jacobs, Mindy Leffel, Marc McMullen

- Assembled one super module
- Selected nine lead-glass blocks for the next super module assembly

Hall A – GEM

Brian Eng, George Jacobs, Marc McMullen

- Developing, using NX12, a model of the GEM gas system
- Recovered SBS gas flow monitoring system after power outage
- Modifying gas flow monitoring program to wait in a loop if IOC dies and exit loop
- Reinstalled the pressure readback Raspberry Pi in Hall A and started monitoring the output pressure to the BigBite

Hall A – SoLID

Mary Ann Antonioli, Pablo Campero, Brian Eng, Mindy Leffel, and Marc McMullen

- Wiring instrumentation racks
 - ★ Rack #1: front 95% complete, rear 70% complete
 - ★ Rack #2: front 92% complete, rear 95% complete
- Fabricated 20 ferrule-to-ferrule cables

Hall B – RICH-II

Mary Ann Antonioli, Peter Bonneau, Pablo Campero, Brian Eng, George Jacobs, Tyler Lemon, and Marc McMullen

- Assembled hardware interlock chassis shell, verifying correct fabrication
- Preparing materials for chassis assembly
 - ★ Items on-hand organized into “kits” for assembling two chassis
 - ★ Waiting on delivery of connectors for RMC and backplane power connection
 - ★ Created a list of connections needed in chassis
- Researching mating connector for I/O on RMC (J11)

Hall C – NPS

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, and Marc McMullen

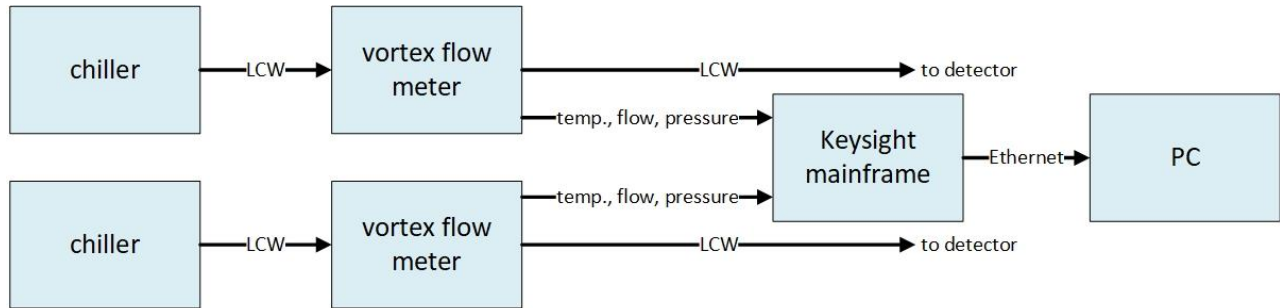
- Converted CAEN Channel, Module, Crate ON/OFF CSS-BOY screen to a CSS Phoebus screen using a Python script
- Completed Python script to generate voltage and current stability plots for each channel of a CAEN high voltage module to be included in the DSG testing & analysis database

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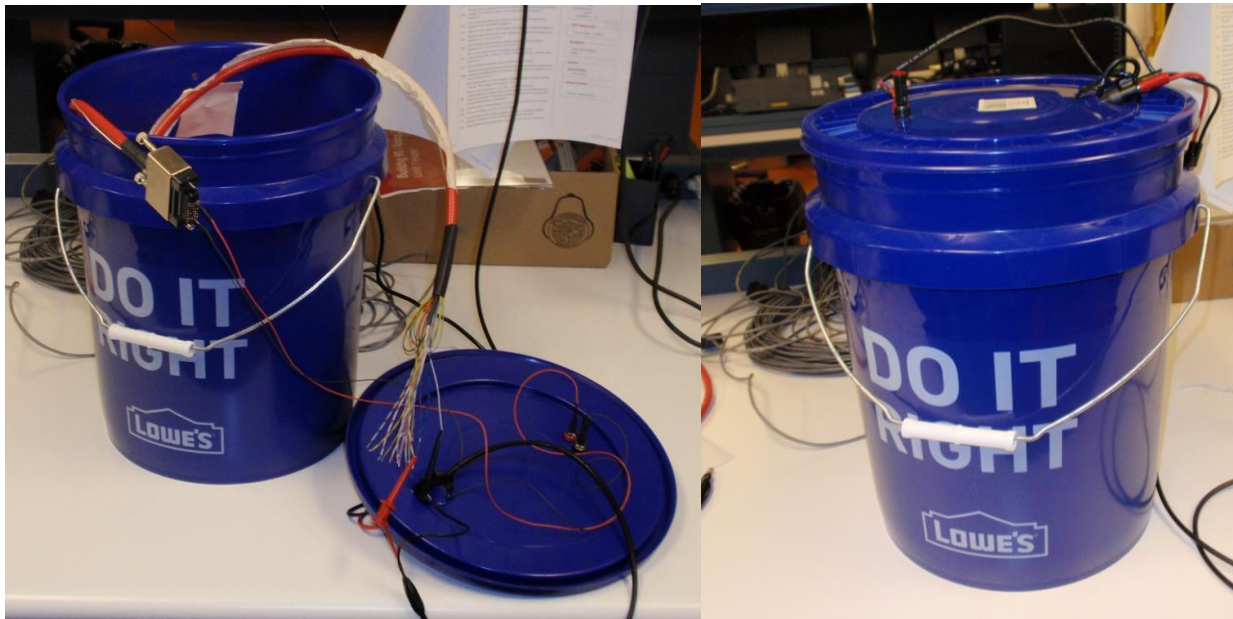
- ★ Generated 576 of 1152 voltage stability plots and 576 of 1152 current stability plots
- Generated Visio drawing detailing readout of temperature, pressure, and flow signals from chiller flow meters



NPS Chiller Monitoring Schematic
M. A. Antonioli
1/4/22

Visio drawing of chiller monitoring schematic

- Added temperature probes to the front and rear faces of crystal array in Ansys model – 1838 of 2160 complete
- Conducting voltage drop testing on 140’ high voltage supply cable; 15 of 36 channels tested



Voltage drop test setup for 140’ high voltage supply cable

- Worked on ESR film pre-shaping – 585 of 600 films completed



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EIC

Pablo Campero, Brian Eng

- Calculated temperature in the Si Sensor L1
 - ★ Assumed N₂ velocity of 5 m/s flowing inside Be pipe
 - ★ Calculated mass flow rate is 0.36 kg/s
 - ★ Assumed $\Delta T = 1^\circ\text{C}$ between the inlet and outlet of Be pipe
 - ★ Calculated convective heat transfer coefficients for inner and outer surface of the annulus space formed between Be pipe and Si Sensor L1
 - ★ Calculated temperature is 93.34°C
- Created other project costs (OPC) task list for CY22

DSG R&D – EPICS Phoebus Alarm System

Peter Bonneau

- Debugged building errors for Phoebus core and applications
 - ★ Rewrote build configuration files and updated the project management software
 - ★ Corrected links to new repositories to resolve dependency file errors
- Fixed all errors and successfully built a Phoebus system product which includes alarm support programs

DSG R&D – GEM

Brian Eng

- Debugging PID control of miniature valve used for flow control with Raspberry Pi
 - ★ Investigating a set of PID values that work for all flow values